A. MU’NISA. Antioxidant and Antihypercholesterolemic Activities of Clove Leave Extract (Eugenia aromatica O.K) in Rabbits. Under the directions of WASMEN MANALU, TUTIK WRESDIYATI, and NASTITI KUSUMORINI.

Clove components and their active principles are potential antioxidants. There has been limited report on the total phenol components of clove leave extract and the potency of clove leave extract as an antioxidant, antihypercholesterolemic, and its function as an antiatherosclerosis in rabbit has not been explored.

The objectives of this research were: (1) To study the effective method of extraction that can provide the highest yield, total phenol, and antioxidant activities of water, methanol, and ethanol extracts of clove leave, and phytochemical components methanol extracts of clove leave, (2) To study serum lipid profiles, intracellular antioxidant profiles, histological changes in liver and kidney and atherosclerosis lesion on the aorta of hypercholesterolemic rabbits fed clove leave extract.

The research was divided into two stages. (1) In vitro experiment, analyzing total phenol, yield, and antioxidant activities of water, methanol, ethanol extract of clove leave, and phytochemical components of methanol extracts of clove leave. (2) In vivo experiments, using twenty seven male New Zealand rabbits. The rabbits were divided into nine groups; (1) negative control group, (2) positive control (hypercholesterolemic) group, which were fed diet containing 1% cholesterol for 50 days; (group 3 to group 5) preventive groups, (group 6 to group 8) curative group, and (9) group given clove leaf extract and cholesterol simultaneously. The dose of clove leaf extract was 1 g/kg/bw/day. The result indicated that methanol extract of clove leave contained total phenol and antioxidant activity that was higher than water extract, ethanol extract, and α-tokoferol. The effects of clove leaf extract were investigated in vivo for their antioxidant and antihypercholesterolemic activities. In general, clove leaf extract treatment showed a significant decrease MDA, and a significant increase in SOD, catalase, and GPX level, and Cu-Zn-SOD content in liver and kidney tissue. This suggested that clove leaf extract reduced oxidative stress, thereby prevented the generation of free radical. The present study demonstrated that clove leaf extract reduced the cholesterol level with a significant increase in antioxidant activity, as evident of significant reduction in LDL parameter, and finally inhibited development of atherosclerosis. The optimum effects were showed in both preventive and curative groups for 30 days of clove leaf extract and in the group that was simultaneously treated with clove leaf extract and fed 1% cholesterol for 50 days. This results indicated that clove leaf extract had significant antioxidant activities, and the clove leaf extract diet exhibited antihypercholesterolemic action in hypercholesterolemic rabbits, which was accompanied by modulation of cholesterol metabolism and increase in liver and kidney antioxidant activities.

Key Words: Eugenia aromatica, antihypercholesterolemic, intracellular antioxidant, atherosclerosis, Cu,Zn-SOD